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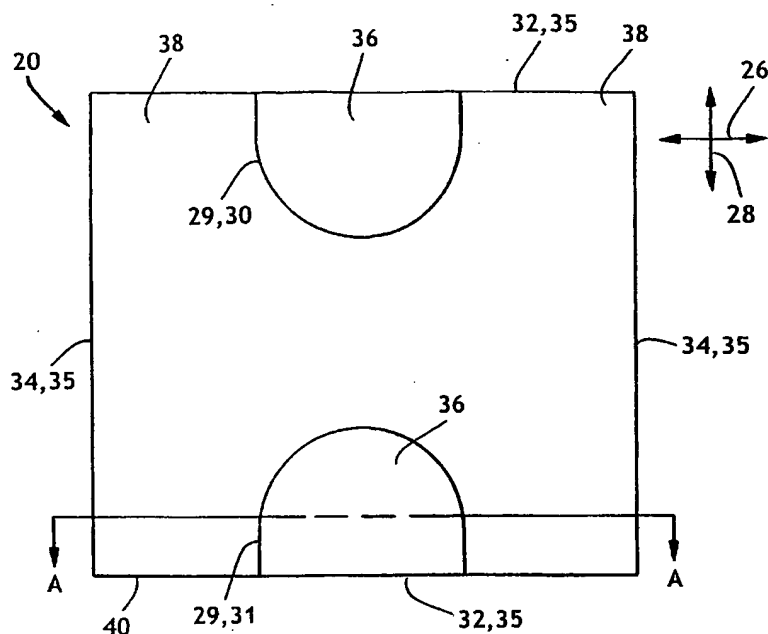
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(54) Title: MAT FEATURING A REMOVABLE PORTION



(57) Abstract: A disposable mat (20) defining a longitudinal direction (28), a lateral direction (26), and at least one edge (35). The disposable mat includes at least one line of weakness (29) that is configured to allow the separation of a removable portion (36) from the disposable mat. The mat may be configured to be used as a toilet or potty mat. Further, the mat may be configured to assist with toilet training.

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## **MAT FEATURING A REMOVABLE PORTION**

### **Field of the Invention**

The present invention relates to mats, desirably disposable non-slip mats such as disposable toilet or potty training mats that have a removable portion and a holding mechanism configured to increase the resistance of the article to movement.

### **Background of the Invention**

Protective toilet or potty mats are often useful in situations where a person, particularly a child, is being toilet trained, or in a circumstance where maintaining a sanitary environment is of particular importance, such as in a hospital or in an elder care environment. It is generally desirable in such situations to protect the area surrounding the toilet or potty chair from bodily exudates, such as urine, which may be present. As such, a mat that isolates the immediate area around the toilet or potty chair is desired. Moreover, in a situation where such an article is used in connection with a child being trained, it is desired that such an article encourages and reinforces toilet and potty use.

Attempts have been made to provide mats to address at least some of these needs. In certain circumstances, reusable mats or pads have been employed by caregivers to provide a clean and sanitary toileting environment. Nonetheless, this has not always been entirely satisfactory since reusable pads may allow liquid runoff, which in turn could lead to conditions that require frequent cleaning of the mat and the toileting area.

Moreover, existing options, when placed on a tile, linoleum or other smooth surface, may not always provide a stable and sure toileting location. Further, due typically to manufacturing considerations, the shape of available mats or pads are such that they may not easily be placed about the majority of the base of a toilet, but instead may be placed down adjacent the front portion of the toilet only.

Further, in training situations, available mats or pads have not always been fully responsive to the desire to create a positive and supportive training environment. That is, existing mats or pads may not remind a child as to where they may suitably orient themselves with respect to the potty or toilet. In addition, existing options may not provide a positive or even fun environment in which to train.

Accordingly, despite attempts made to provide appropriate toilet or potty mats, there remains a need for disposable mats that are suited for use in a toileting environment. That is, there remains a need for disposable mats that provide a secure, non-slip area, and are capable of fitting closely about the base of a toilet. Further, there remains a need in certain instances to provide these features while reinforcing the training process.

### Summary of the Invention

10 In response to the problems and difficulties discussed above, a new distinctive disposable mat has been discovered. In one aspect the present invention concerns a disposable mat defining a longitudinal direction, a lateral direction and at least one edge. The disposable mat includes a first face, a second face opposite the first face, and at least one line of weakness. The at least one line of weakness is configured to allow the separation of a removable portion from the disposable mat. The mat also includes a holding mechanism configured to increase the resistance of the mat to movement when the first face of the mat is placed upon a planar surface.

20 In another aspect, the present invention concerns a disposable mat defining a longitudinal direction, a lateral direction, a pair of side edges that are parallel to the longitudinal direction and a pair of end edges that are parallel to the lateral direction. The disposable mat includes an operatively liquid impermeable first face, an absorbent second face opposite said first face, and at least one line of weakness. The at least one line of weakness is configured to allow the removal of a portion of the disposable mat. The mat also includes a holding mechanism that is configured to increase the resistance of the mat to movement when the first face of the mat is placed upon a planar surface, and a pair of first reference marks located on the second face. The pair of first reference marks is configured to indicate where the feet of the user should be placed when the user is toileting.

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In yet another aspect, the present invention concerns a disposable mat defining a longitudinal direction, a lateral direction, and at least one edge. The disposable mat includes a first face and a second face opposite the first face and at least one decorative graphic located on the second face. The at least one decorative graphic has a decorative

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graphic theme and the decorative graphic theme is related to the theme of article graphics of a disposable absorbent article.

Accordingly, the present invention provides a mat that is suitable for use as a toilet or potty  
5 mat. In particular, the present invention provides a mat that may assist in toilet training people, especially children.

It is understood that both the foregoing general description and the following detailed  
description are exemplary and are intended to provide further explanation of the invention  
10 claimed. The accompanying drawings, which are incorporated in and constitute part of this specification, are included to illustrate and provide a further understanding of the mats of the present invention. Together with the description, the drawings serve to explain the various aspects of the invention.

15 Brief Description of the Drawings

The present invention will be more fully understood and further advantages will become  
apparent when reference is made to the following detailed description of the invention and  
the accompanying drawings wherein like numerals represent like elements. The drawings  
20 are merely representative and are not intended to limit the scope of the appended claims.

Fig. 1 representatively illustrates a top plan view of an example of a mat of the present  
invention;

25 Fig. 2 representatively illustrates a section view of the mat of Fig. 1 along line A – A.

Fig. 3 representatively illustrates a top plan view of another example of a mat of the  
present invention with the removable portion removed from the mat.

30 Fig. 4 representatively illustrates a top plan view of yet another example of a mat of the  
present invention.

Fig. 5 representatively illustrates a top plan view of yet another example of a mat of the  
present invention.

35 Fig. 6 representatively illustrates a section view of the mat of Fig. 6 along line A – A.

Fig. 7 representatively illustrates a top plan view of yet another example of a mat of the present invention.

- 5 Fig. 8 representatively illustrates a top plan view of yet another example of a mat of the present invention.

Fig. 9 representatively illustrates a disposable absorbent article that includes decorative graphics.

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#### Detailed Description of the Invention

The present invention is directed to solving the problems related to maintaining a sanitary toileting area, particularly in situations where cleanliness is of particular importance or in  
15 situations where cleanliness may be particularly challenging, such as when toilet training children. For example, the present invention is directed to solving the potential problem of providing adequate protection for a substantial portion of the toileting area. Moreover, the present invention is directed to solving the problem of potential slippage of the mat that may result from a slick backing, by providing a secure, non-slip toileting environment. In  
20 particular aspects, the present invention may also be directed to solving the possible problems related to the clean up associated with some non-disposable potty mats. In yet other aspects, the present invention may also be directed to solving problems associated with the process of toilet training children.

- 25 As such, the present invention is directed to a disposable article, for example a disposable toilet or potty mat, that is particularly suited for use when toilet training a child or when providing care for the elderly or others that may have incontinence problems. The mat may be configured to resist movement when in place and to have a removable portion such that it may fit closely about the base of a toilet. In addition, the mat of the present  
30 invention may be configured to assist in the toilet training process; for example, the mat of the present invention may include reference marks that provide assist the user in orienting themselves when toileting.

The disposable mats of the present invention will be described in terms of a disposable  
35 potty mat, adapted to be used when training children. In particular, the disposable mats will be described in terms of a potty mat that includes a first face, a second face opposite

the first face, and at least one line of weakness. Typically, disposable articles are intended for limited use and are not intended to be laundered or otherwise cleaned for reuse. It is understood that the articles of the present invention are equally adaptable for other types of mats such as bed pads, changing pads, surgical drapes, adult incontinent products, feminine care products, items for medical kits, items for first aid kits, personal hygiene products, other personal care or health care garments, and the like. One such changing pad is described in U.S. application serial number 10/370683 to Rippl et al., the disclosure of which is incorporated herein by reference in a manner that is consistent (not in conflict) herewith.

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Figs. 1, 3, 4, 5, 7, and 8 representatively illustrate a potty mat 20 of the present invention. Figs. 2 and 6 representatively illustrate a section view of the potty mat 20 of Figs. 1 and 5, respectively, along section line A-A. As illustrated in Figs. 1, 3, 4, 5, 7 and 8 the potty mat 20 of the present invention defines lateral direction 26, and a longitudinal direction 28 perpendicular to the lateral direction 26. In addition, the potty mat 20 defines at least one edge 35, for instance, a pair of end edges 32 that are parallel to the lateral direction 26, and a pair of side edges 34 that are parallel to the longitudinal direction 28. As representatively illustrated in Figs. 2 and 6, the potty mat also includes a first face 22 and a second face 24 opposite the first face 22. The potty mat 20 also includes at least one line of weakness 29 and at least one removable portion 36.

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In general, the second face 24 is that part of the potty mat 20 that would face the user and that the user would orient themselves upon during use, and the first face 22 is that part of the potty mat 20 that is facing the surface upon which the potty mat 20 is placed during use. As such, the first and second faces 22 and 24 may be provided by one uniform material, or they may be provided by a plurality of layers, coatings, other materials and applications, and the like or combinations thereof that may be used to provide the potty mat 20 of the present invention.

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As representatively illustrated in Fig. 1 and 2, the potty mat 20 of the present invention may suitably be provided by a single layer of material. Alternatively, the potty mat 20 of the present invention may be provided by multiple layers of material, as representatively illustrated in Figs. 5 and 6. For example the potty mat 20 may include a first layer 72 and a second layer 74 that is substantially coextensive with the first layer 72. In such a configuration, the first face 22 would be provided at least in part by the first layer 72, and likewise, the second face 24 would be provided at least in part by the second layer 74.

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Alternatively, as representatively illustrated in Figs. 5 and 6, the second layer 74 may be smaller than the first layer 72 in the lateral direction 26, the longitudinal direction 28, or both. In such a configuration, the first face 22 would be provided at least in part by the first layer 72, and the second face 24 would be provided at least in part by both the second layer 74 and the first layer 72. Alternatively, the second layer 74 may also be configured to be larger than the first layer 72 in the lateral direction 26, the longitudinal direction 28, or both. In such a configuration, the first face 22 would be provided at least in part by both the first layer 72 and the second layer 74, and the second face 24 would be provided at least in part by the second layer 74.

The potty mat 20 of the present invention may be various suitable shapes as are well known in the art. For example, prior to the separation of the removable portion 36, the potty mat 20 may be rectangular, round, elliptical, trapezoidal, and the like. Suitably, the potty mat 20 may have a generally rectangular or square shape for ease of manufacturability.

The surface area of the potty mat 20 is bounded by the perimeter 40 of the potty mat. The perimeter 40 may be provided by any layer, face, or material that may be attached or otherwise part of the mat 20, or combinations thereof. Therefore, for the generally rectangular configuration illustrated in Figs. 1, 3, and 5, the perimeter 40 of the potty mat 20 is established by end and side edges 32 and 34. Likewise, for the generally round configuration illustrated in Fig. 4, the perimeter 40 of the potty mat 20 is established by the at least one edge 35.

In particular embodiments of the present invention, the potty mat 20 may desirably, although not necessarily, include a holding mechanism 68 that is configured to increase the resistance of the potty mat to movement when the first face 22 of the potty mat 20 is placed upon a planar surface, such as the floor surrounding the potty chair or toilet. Such a holding mechanism 68 can reduce the amount of bunching and shifting in the potty mat 20 during use. In addition, a holding mechanism 68 can help the potty mat 20 provide a safe and secure surface upon which the user can rely when toileting. This can be especially beneficial when using the potty mat 20 in connection with training a child, or using the potty mat 20 to assist with elder care.



The holding mechanism 68 may be provided by any method known in the art. For example, the potty mat 20 may include at least one weight 70 to help keep it in place once it is placed upon a planar surface. In particular, and as representatively illustrated in Figs. 5 and 6, the potty mat 20 of the present invention may include four weights 70 that are generally located in the corners of the mat 20. The potty mat 20 may include as many or as few weights 70 as necessary to achieve the desired results. Moreover, the weights 70 may be distributed anywhere within the perimeter 40 of the potty mat 20. The weights 70 may be provided by any suitable material such as stainless steel, synthetic or natural rubbers, plastics, and the like or combinations thereof as are well known in the art.

Alternatively, the potty mat 20 may include a holding mechanism that provides a particular static coefficient of friction when the first face 22 of the mat 20 is placed upon a planar surface. For example, at least a portion of the first face 22 of the present invention may suitably be arranged to present a frictional surface and thus provide the holding mechanism 68 for the potty mat 20. As such, in one aspect, at least a portion of the first face 22 of the potty mat 20 provides a static coefficient of friction of at least 0.5 as defined by the coefficient of friction test defined herein to provide the holding mechanism 68 of the present invention. Alternatively, at least a portion of the first face 22 of the potty mat 20 has a static coefficient of friction of at least 0.7 as defined by the coefficient of friction test defined herein to provide the holding mechanism 68 of the present invention. In another alternative, at least a portion of the first face 22 of the potty mat 20 has a static coefficient of friction of at least 1.5 as defined by the coefficient of friction test defined herein to provide the holding mechanism 68 of the present invention.

Further, in an arrangement as described above, it may be desired that the holding mechanism 60 maintain a static coefficient of friction below a particular level in order to allow the user or caregiver to more easily adjust the potty mat 20. Specifically, it may be desirable that at least a portion of the first face 22 of the potty mat 20 providing the holding mechanism 60 have a static coefficient of friction of between 0.5 and 2.0 as defined by the coefficient of friction test defined herein to provide the holding mechanism of the present invention. More desirably, at least a portion of the first face 22 of the potty mat 20 has a static coefficient of friction of between 0.7 and 1.5 as defined by the coefficient of friction test defined herein to provide the holding mechanism 68 of the present invention.

Any suitable material, coating, adhesive, or other additive, or combinations thereof may be used to imbue at least a portion of the first face 22 with the desired coefficient of friction to

provide the holding mechanism 68 of the present invention. For example, in one aspect, the holding mechanism 68 may be provided by an adhesive included on the first face 22 that allows the mat 20 to be applied and then removed and re-applied repeatedly as necessary during use. Alternatively, the holding mechanism 68 may be provided by a film material that also provides the first face 22 of the mat 20. One such film is available from Pliant Corporation and is described in greater detail below.

In the various aspects of the present invention, the potty mat 20 also includes at least one line of weakness 29. For example, as representatively illustrated in Figs. 1, 3, 4, 5, 7 and 8 the potty mat includes a first line of weakness 30. The first line of weakness 30 may intersect with at least one edge 32, 34, or 35 of the potty mat in order to create a removable portion 36. As such, the potty mat 20 is configured to allow the separation of the removable portion 36 from the mat 20. Accordingly, the user or caregiver may optionally separate the removable portion 36 from the potty mat 20 at the first line of weakness 30 so that the mat 20 may be placed about the base of a toilet or potty chair to provide greater protection, particularly on the sides of the toilet or potty chair.

Referring to Figs. 1, 3, 4, 7 and 8, the at least one line of weakness 29 may be substantially continuous and intersects at least one edge 32, 34, 35 of the mat 20 in at least two points. Alternatively, the at least one line of weakness 29 may be relatively discontinuous. In another alternative (not shown) the at least one line of weakness 29 may intersect one edge of the mat 32 or 34 at one point and intersect a different edge of the mat 32 or 34 at another point.

The at least one line of weakness 29 may be suitably located in the potty mat 20 in order to allow the separation of the removable portion 36 from the mat 20. For instance, the at least one line of weakness 29 may be located in the first face 22, the second face 24, or, as representatively illustrated in Fig. 2, the at least one line of weakness may pass through the entire mat 20 and accordingly be located in both the first and second face 22 and 24. Consequently, in arrangements where the mat 20 includes discrete layers 72, 74, the at least one line of weakness 29 may pass through all of the layers or only selected layers. For example, one layer of the mat 20 may be relatively easy for the user or caregiver to tear, while another layer of the mat 20 may be difficult to tear. In such a configuration, the at least one line of weakness 29 may not necessarily be located in the easily tearable layer, but may advantageously be located in the layer that is relatively difficult to tear.

Further the at least one line of weakness 29 may be suitably apparent to the user or the caregiver to facilitate the separation of the removable portion 36. In certain aspects, the at least one line of weakness 36 may be adequately apparent as a result of the nature of  
5 how the at least one line of weakness 36 is provided. Alternatively, the at least one line of weakness may be accentuated with bright colors, highlighting, markings, or text.

In one aspect, and as illustrated in Figs. 1, 3, 4, 7 and 8 the at least one line of weakness 29 may be shaped such that upon separating the removable portion 36, the mat 20  
10 includes a pair of laterally spaced extensions 38. Thus, the extensions 38 may be placed along either side of the base of a toilet or about a potty chair in order to provide suitable side coverage in use. In a particular aspect, it may be desirable that the laterally spaced extensions be separated by at least 22 cm in said lateral direction. As such, upon separation of the removable portion 36, the mat 20 of the present invention may easily be  
15 fitted about the base of a toilet or potty chair, yet still fit closely enough that adequate protection is provided and the need for additional clean-up is reduced.

Alternatively, the user or caregiver may choose not to separate the removable portion 36 from the potty mat 20. In such a situation, a potty chair may be placed in a suitable  
20 location on the second surface 24 of the mat 20. As will be described in greater detail below, the potty mat 20 may include a potty location mark 58 (representatively illustrated in Fig. 4) suggesting a suitable location for a potty chair to be located. Such an arrangement may also be desirable in situations where a toilet is wall-mounted.

25 The at least one line of weakness 29 of the present invention may be generally linear or curvilinear. As such, the at least one line of weakness 29 may create a removable portion 36 of various shapes and sizes to accommodate the base of a toilet or potty chair. In the illustrated embodiments, the lines of weakness 30 and 31 are generally curvilinear to create removable portions 36 that are generally circular or semi-circular in shape.  
30 Alternatively, the removable portions 36 may be elliptical, semi-elliptical, rectilinear, and the like.

In another aspect, as representatively illustrated in Fig. 5, the at least one line of weakness may be configured to intersect with itself to create a removable portion 36.  
35 Specifically, the at least one line of weakness 29 may be shaped such that upon separating the removable portion 36 from the mat 20, the mat 20 includes an opening

within its perimeter 40. In such an arrangement, the mat 20 may optionally provide protection all the way around the potty or toilet. In addition, the line of weakness 30 may be continued from the edge of the removable portion 36 to an edge 32, 34 or 35 of the mat 20 in order to provide a slit (not shown) to ease the use of the mat 20 in connection with a toilet.

The opening provided by the removable portion 36 may be of various shapes and sizes. For example, the opening may be rectangular, circular, elliptical, triangular, and other shapes as are known to those skilled in the art, and combinations thereof. Similarly, the opening may be of differing sizes to accommodate the base of a toilet or a potty chair. Desirably, at least a portion of the opening is at least 9 inches wide to allow the user or caregiver to readily place the mat 20 in the toileting area while still providing adequate protection directly around the toilet or potty chair.

In particular aspects, the potty mat 20 may include multiple lines of weakness. For instance, as representatively illustrated in Figs. 1 and 4, the potty mat 20 may include a first line of weakness 30 and a second line of weakness 31. Optionally, the first line of weakness 30 and the second line of weakness 31 may be located in opposing areas of the mat 20. That is, as representatively illustrated in Figs. 1 and 4, the first line of weakness 30 may intersect one end edge 32 and the second line of weakness 31 may intersect the opposing end edge 32. Likewise, as representatively illustrated in Fig. 4, each line of weakness 30 and 31 intersects the at least one edge 35, but in opposing areas of the second face 24. Thus, the user or the caregiver has the option of separating one or both of the removable portions 36. As will be described in greater detail below, such an arrangement may be desirable when the user or caregiver is selecting between various gender specific options that may be provided by the potty mat 20.

Suitable techniques to provide the line of weakness to allow manual separation of the removable portion 36 are well known in the art. For example, the line of weakness may be provided by perforations in the mat 20, a line of continuous or intermittent ultrasonic bonds, an area of lower basis weight in the material, and the like or combinations thereof.

The various aspects of the potty mat 20 of the present invention may also include a variety of reference marks 50, 52 on the second face 24 of the mat 20 that are configured to indicate where the feet of the user should be placed when the user is toileting. Reference marks 50, 52 associated with the present invention may be configured to indicate where

the user should place their feet in a number of different ways. For example, and as will be discussed in greater detail below, the reference marks of the present invention may indicate their purpose by their location, the nature of the graphic providing the mark, or combinations thereof. Alternatively, the potty mat 20 may also include text and other  
5 information to direct the user when toileting.

Thus, as representatively illustrated in Figs. 3, 4, 5, 7 and 8 the mat 20 may include a pair of first reference marks 50 on the second face 24. In addition, and as mentioned above, the potty 20 may also include a potty location mark 58 on the second face 24 of the mat  
10 20 that is configured to indicate where a potty chair may be suitably placed should the user or caregiver choose to use the mat 20 in connection with a potty chair. For example, as representatively illustrated in Fig. 4, the potty mat 20 may include a potty location mark 58 as well as at least one line of weakness 29. The potty location mark 58 may be any  
15 suitable symbol, graphic, text, or combination thereof that may indicate to the user or caregiver where the potty chair should be placed. For example, the potty location mark 58 may be a silhouette of a potty chair, or may be a potty chair shaped flower, baseball, sun, or other suitable object. It should be noted that the potty location mark 58 may be located  
within the removable portion 36, intersect the at least one line of weakness 29, or may otherwise be located within the perimeter 40 of the mat 20.

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In a particular aspect, the potty mat 20 may include a pair of first reference marks 50 located between a pair of opposing lines of weakness, 30 and 31, as representatively illustrated in Fig. 8. In such an arrangement, the user or caregiver may select whether the potty mat 20 should be configured to be used while standing and toileting or sitting while  
25 toileting. Accordingly, such an embodiment would allow the selection of a gender specific orientation with only a single pair of reference marks 50. For example, the user or caregiver may use the first line of weakness 30 to separate the removable portion 36 that the first reference marks 50 are pointing at. In such an arrangement, the first reference marks 50 would indicate where the feet of the user should be placed when standing while  
30 toileting. Alternatively, the user or caregiver may use the second line of weakness 31 to separate the removable portion 36 that the first reference marks 50 are pointing away from. In such an arrangement, the first reference marks 50 would indicate where the feet of the user should be placed when sitting while toileting.

35 In addition, the mat 20 may also include a pair of second reference marks 52 on the second face 22. Similar to the first reference marks 50, the second reference marks 52

- may also be configured to indicate where the feet of the user should be placed when the user is toileting. However, the second reference marks 52 may be used to indicate where the feet of the user should be placed when using the toilet or the potty chair differently than when the user is using the potty chair according to the first reference marks 50. That is, the first reference marks 50 may be provided to indicate where the feet of the user should be placed when using the toilet or potty chair while standing. Accordingly, in such an arrangement, the second reference marks 52 may be provided to indicate where the feet of the user should be placed when using the toilet or potty chair while sitting.
- 10 The first and second reference marks 50 and 52 may both be associated with the same line of weakness 30 or potty location mark 58. Alternatively, the first and second reference marks 50 and 52 may be associated with different lines of weakness 30 or potty location marks 58 or combinations thereof. For example, as representatively illustrated in Fig. 4, the pair of first reference marks 50 may be associated with a first line of weakness 30 and indicate one orientation for a user's feet (in this instance standing), while the pair of second reference marks 52 may be associated with a second line of weakness 31 and indicate a different orientation for a user's feet (in this instance sitting). As such, and as will be described in greater detail below, a potty mat 20 including both first and second reference marks 50 and 52 may optionally have gender specific configurations.
- 20 In another alternative, the first and second reference marks 50 and 52 may each be located on the removable portions 36 that are provided by the first and second lines of weakness 30 and 31. Thus, the user or the caregiver may optionally configure the mat 20 for use while sitting or while standing by removing the desired removable portion 36, and consequently, the reference marks 50 or 52 that may no longer be required is also removed. For instance, as representatively illustrated in Fig. 7, if it is desired to configure the mat 20 to be used for standing while toileting, the removable portion 36 may be separated from the mat 20 at the first line of weakness 30. As such, the second reference marks 52 are also removed. Likewise, if it is desired to configure the mat 20 to be used for sitting while toileting, the removable portion 36 may be separated from the mat 20 at the second line of weakness 31. As such, the first reference marks 50 are also removed. The above mat 20 configuration may be helpful in a situation where the toileting process is desired to be as simple as possible, such as when toilet training small children.
- 35 The individual objects that make up the pair of reference marks 50 or 52 may each be located a substantially equal distance from the at least one line of weakness 29 or the

potty location mark 58. Therefore, if a pair of reference marks 50 or 52 is provided by a pair of feet, each foot may be located a substantially equal distance from the at least one line of weakness or the potty location mark 58. As used herein in connection with the reference marks 50 and 52, a "substantially equal distance" means the distances are within 5 cm of each other. Thus, in the above example, if one foot in a pair of reference marks were 10 cm away, the other foot should be between 5 cm and 15 cm away so the pair of reference marks 50 or 52 is located a substantially equal distance from the at least one line of weakness 29 or the potty location mark 58.

For example, the pair of first reference marks 50 each may be located a first substantially equal distance from the at least one line of weakness 29 or the potty location mark 58. In a particular aspect the distance between the at least one line of weakness 29 or the potty location mark 58 and the pair of first reference marks 50 may be a first substantially equal distance 84 of between 5 cm and 22 cm. In another aspect, the distance between the at least one line of weakness 29 or the potty location mark 58 and the pair of second reference marks 52 may be a second substantially equal distance 86 of between 12 cm and 30 cm. This distance may be measured by measuring the shortest linear distance between the reference marks and the line of weakness or potty location mark, as shown in Figs. 3, 4 and 5.

The reference marks 50 and 52 of the present invention may be depicted by graphics located on the second surface 24 of the mat 20. The graphics may be any suitable figure, object or symbol. For greatest effectiveness, the nature of the graphic should be such that the user associates the graphic with where they should stand. For example, the graphic can be a pair of foot prints, animal paws or hooves, or the soles of shoes or boots or other footwear, and the like or combinations thereof. In addition, the graphics for a pair of reference marks 50 or 52 may be two different objects. Alternatively, the graphics for a pair of reference marks 50 or 52 may be substantially similar (i.e. a left and right foot or a left and right shoe), or identical. As representatively illustrated in Figs. 3, 4 and 5, the mat includes a pair of first reference marks 50 provided by a set of first graphics 54. In the illustrated embodiments, the set of first graphics 54 are a pair of feet or other foot ware, thus making the set of first graphics 54 providing the first reference marks 50 substantially similar. Likewise, as representatively illustrated in Fig. 4 and 7, the mat includes a pair of second reference marks 52 provided by a set of second graphics 56. In the illustrated embodiment, the set of second graphics 56 are a pair of feet, thus making the second graphics providing the second reference marks 52 substantially similar.

In a particular aspect, the set of first graphics and set of second graphics 54 and 56 for the first and second reference marks 50 and 52 may be substantially similar (i.e. a pair of left and right feet or shoes, but they may be pointing in different directions) or identical.

- 5 Alternatively, the set of first graphics and set of second graphics 54 and 56 for the first and second reference marks 50 and 52 may be different to further distinguish them from each other. For instance, the first and second graphics 54 and 56 may be different in order to make the first and second graphics 54 and 56 gender specific. Such an arrangement may be particularly useful to assist with toilet training children. In particular, the reference mark
- 10 50 or 52 that indicates where the user should place their feet when standing may be provided by graphics 54 or 56 that are generally of interest to young boys. Accordingly, the reference mark 50 or 52 that indicates where the user should place their feet when sitting may be provided by graphics 54 or 56 that are generally of interest to young girls. This arrangement may be used regardless of whether the first and second reference
- 15 marks 50 and 52 are associated with the same line of weakness 30 or potty location mark 58 or not.

- The mat 20 may also include at least one decorative graphic 60 located on the second face 24 of the mat 20. As with the set of first graphics and the set of second graphics 54
- 20 and 56, the decorative graphics 60 may be any suitable figure, object, or symbol. For instance, as representatively illustrated in Fig. 3, the decorative graphics include planets, rockets, and other objects directed to "space." Similarly, as representatively illustrated in Fig. 5, the decorative graphics 60 include fish, boats, and other nautical objects. The decorative graphics 60 may be related or unrelated. In particular aspects, and as
- 25 described above, the decorative graphics 60 may collectively have a unifying decorative graphic theme (i.e. "space" and "nautical"). The themes may enhance the aesthetic qualities of the mat, including largely ornamental graphics, or if using the mat 20 in connection with toilet training a child, the graphics can be attractive to a child, gender specific, or relate to a character or story popular with children. In a particular aspect, the
- 30 graphics 60 in one area of the mat 20 may be of one theme, while the graphics 60 in another area of the mat 20 may be of a different theme. For instance, as representatively illustrated in Fig. 4, the graphics 60 on one portion of the mat 20 are directed to a nature theme while the graphics 60 on another portion of the mat 20 are directed to a sporting theme. This arrangement may be useful where there is a first and second line of
- 35 weakness 30 and 31 or a line of weakness 30 and a potty location mark 58. As such, one



theme may be associated with one line of weakness 30 and the other theme may be associated with the other line of weakness 31 or a potty location mark 58.

It may also be noted that the decorative graphic theme may be established by a plurality of  
5 graphics 60 as described above, or a single graphic. For example, in a circumstance where the potty mat 20 is round, the decorative graphic theme may be established with one large graphic that makes the mat 20 appear to look like a baseball or a large flower.

10 In certain aspects, the set of first graphics and the set of second graphics 54 and 56 that provide the reference marks 50 and 52 may advantageously be related to the unifying theme of the decorative graphics 60. Therefore, in such situations where the decorative graphics 60 have a unifying theme as described above, the first and second graphics 54 and 56 may also be part of the theme. For example, as representatively illustrated in Fig. 3, the theme of the decorative graphics 60 is space related, and the first graphic 54 is a  
15 pair of space boot prints. Similarly, as representatively illustrated in Fig. 5, the theme of the decorative graphics 60 is nautical, and the first graphic 54 is a pair of flippers. Alternatively, it may be desirable to distinguish the graphics 54 and 56 that provide the reference marks 50 and 52 from the unifying theme of the decorative graphics 60 in order to make the marks more visible to the user. In another aspect, the potty location mark 58  
20 may also be related to the theme of the decorative graphics 60, or alternatively, may be different than the theme of the decorative graphics 60 in order to distinguish the suggested location of the potty chair for the user or caregiver.

In other aspects, the theme of the decorative graphics 60 of the mat 20 may  
25 advantageously match at least one of the graphical themes that may be present on a disposable absorbent article. Such absorbent articles are well known in the art and include children's training pants, diapers, adult incontinence articles, and the like. For example, Fig. 7 representatively illustrates a disposable absorbent article 80, specifically a child's training pant, having article graphics 82. The article graphics 82 generally have a  
30 "space" theme. Accordingly, it may be advantageous, particularly when training, to have the wearer of the article associate the article with the potty mat 20. As such, the theme of the decorative graphics 60 may be related to the theme of the article graphics 82. For example, as mentioned above, Fig. 3 representatively illustrates a mat 20 having graphics 60 that matches the theme of the article graphics 82 on the article illustrated in Fig. 7.  
35 One example of an absorbent article having graphics is described in U.S. Patent

6,297,424 to Olson et al., the disclosure of which is hereby incorporated by reference in a manner that is consistent (i.e. not in conflict) herewith.

5 The graphics 54, 56, 58, and 60 may be provided by various methods as are known in the art. For instance the graphics 54, 56, 58, and 60 may be printed, embossed, applied by non-contact methods, and the like or combinations thereof. Further examples of how to provide graphics are described in U.S. Patent 5,766,389 to Brandon et al., the disclosure of which is hereby incorporated by reference in a manner that is consistent (i.e. not in conflict) herewith.

10

Numerous materials may be used to provide the potty mat 20 having some or all of the characteristics described above. The potty mat 20 may be provided by various natural or synthetic woven or nonwoven materials, film layers, and other materials or combinations thereof. For example, one suitable material for the potty mat 20 of the present invention is  
15 a nonwoven laminate material composed of pre-formed 33.9 grams per square meter (gsm) wettable spunbond and a 15.24 micron catalloy film layer sandwiching a 50.84 gsm wettable meltblown layer. This material is available as CONTROL\* Plus Absorbent Fenestration Reinforcement Fabric from Kimberly Clark Corporation, a company having offices in Neenah, WI. Such a laminate material may be used alone or with coatings or  
20 adhesives to provide a single layer mat 20 as representatively illustrated in Figs. 1 and 2.

Alternatively, as mentioned above, the potty mat 20 may be provided by multiple layers of discrete material. For example, as representatively illustrated in Figs. 5 and 6, the potty mat 20 may include a first layer 72 disposed toward the first face 22 of the potty mat and a  
25 second layer 74 located adjacent the first layer 72. Thus, in certain aspects, the first layer 72 may be arranged to provide at least a portion of the first face 22 of the potty mat 20; and the second layer 74 may be arranged to provide at least a portion of the second face 24 of the potty mat 20.

30 In a multiple layer configuration, the layers 72 and 74 may be directly or indirectly joined together using suitable means as are well known in the art. For example, the second layer 74 may be joined directly to the first layer 72 by an adhesive. Such adhesives may be applied by spraying, slot coating, or other methods, and combinations thereof. In one aspect, the layers 22 and 24 are joined together using a hot melt adhesive applied in a  
35 swirl pattern. Suitable hot melt adhesives may be obtained from Findley Adhesive, a company having an office in Durham, NC, under the designation H2525a, and may be

applied at a basis weight of about 1.6 gsm. Alternatively, the second layer 74 may be joined directly to the film layer by ultrasonic bonding, pressure bonding, heat welds, stitching, mechanical attachment, or other methods known in the art, and combinations thereof.

5

The first face 22 may either be liquid permeable or liquid impermeable. In certain aspects, it may be advantageous for the first face 22 to be operatively liquid impermeable. As such, the first face 22 may be provided at least in part by thin plastic film or other flexible liquid-impermeable material. Further, the first face 22 may optionally be composed of a  
10 micro-porous "breathable" material which permits vapors to escape from the first face 22 while still preventing liquid exudates from passing through.

In a particular aspect, the first face of the potty mat 20 may be provided by a first layer 72 that is a liquid impermeable polyethylene film having a thickness of 15.24 microns and a  
15 basis weight of about 45 gsm. The polyethylene film may further include a blend of resins to provide the potty mat with the desired coefficient of friction. Suitable resins include, but are not limited to, vinyl acetates, methyl acrylates, and polyolefin plastomers. One such film may be obtained from Pliant Corporation having an office in Chippewa Falls, WI under the designation of film XC2-22-1645.3. Alternatively, the first face may be provided by a  
20 substantially liquid permeable material that is treated to be substantially liquid impermeable. Such treatments are well known in the art, and include, but are not limited to SCOTCH-GARD PROTECTOR treatment.

The second face 24 of the potty mat 20 may be more or less absorbent than the first face  
25 22. Alternatively, the second face 24 may have absorbent properties that are substantially similar to the first face 22. In certain aspects, it may be advantageous for at least a portion of the second face 24 to be relatively more absorbent than the first face 22. For example, the first face 22 may be absorbent at least adjacent to the at least one line of weakness 29. Alternatively, the entire second face 24 may be absorbent.

30

As such, the second face 24 may be provided at least in part by an absorbent second layer 74. The absorbent second layer 74 may be formed from any suitable absorbent material such as natural or synthetic fibers, cellulose, foams, superabsorbent particles, and combinations thereof. In a particular embodiment, the absorbent structure can be a  
35 unitary or single-ply fibrous web having a laminate-like structure. This structure may consist of a soft, absorbent central core region of relatively low fiber concentration

sandwiched between two strong, abrasion resistant surface regions of high fiber concentration. The surface regions may include bonding material to provide strength to the web. Desirably, this bonding material may be elastomeric. The relatively low fiber concentration within the central core region provides space to increase the absorbency of the web. Within the central core region and extending entirely through the web are networks of fibers that generally connect the two surface regions together without the use of bonding material. The bonding material in at least one surface region may be disposed of in a fine, spaced-apart pattern, and the bonded portions in that surface region may be finely creped to soften them. Such an absorbent structure is described as a double  
5    recreped fibrous web (DRC) and is further disclosed in U.S. Patent No. 5,674,590 issued  
10   October 7, 1997 to Anderson et al., the disclosure of which is hereby incorporated by reference. In a particular aspect, the absorbent layer may be a DRC having a basis weight of between 80 gsm and 90 gsm, and more particularly about 86 gsm.

15    Advantageously, in the arrangements where the second face 24 is configured to be absorbent, it suitably provides a certain level of absorbent capacity to the potty mat 20. In one aspect, the second face 24 may provide an absorbent capacity of at least 0.05 grams/cm<sup>2</sup> as determined by the absorbent capacity test set forth herein. In another  
20    aspect, the second face 24 may provide an absorbent capacity of at least 0.07 grams/cm<sup>2</sup> as determined by the absorbent capacity test set forth herein. Alternatively, the second face 24 may provide an absorbent capacity of between 0.05 grams/cm<sup>2</sup> and 1.2 grams/cm<sup>2</sup>.

The different aspects of the present invention advantageously provide a potty mat 20 that  
25    has at least one line of weakness that is configured to allow the separation of a removable portion from the potty mat. As such, the potty mat may be effectively tailored for use with a toilet or for use with a potty chair. The present invention may also advantageously include reference marks that are configured to indicate where the feet of the user should be placed when the user is toileting. Thus, the potty mat 20 may be used to assist in the  
30    toilet training process, as well as providing a more sanitary toileting environment. Moreover, the training benefit may be enhanced by the optional use of at least one decorative graphic having a decorative graphic theme. Various other graphics that may be present on the potty mat or on absorbent articles worn by the user may relate to the decorative graphic theme thereby providing a positive and even fun toilet training  
35    environment. Thus, the present invention provides a potty mat that may be readily placed

about the base of a toilet and provides a clean, secure, and positive toileting environment to the user.

Suitable techniques for demonstrating the improved qualities of the present invention are  
5 set forth below in the "Testing" section of the present disclosure.

#### Test Methods

For the tests described below, the following example was used:

10 Example 1:

A mat including the following:

A 15.24 micron film layer having a basis weight of about 45 gsm available from Pliant Corporation (Chippewa Falls, WI) under the designation of film XC2-22-1645.3.

An 86 (gsm) DRC absorbent layer available from Kimberly-Clark Corporation (Neenah,  
15 WI).

The film layer and the absorbent layer were joined using Airflex 426 binder applied at a basis weight of about 1.6 gsm. The adhesive is available from Air Products and Chemicals, Inc., a company having an office in Allentown, PA.

20

#### **Coefficient of Friction (COF)**

This test is used to measure the static COF of the first face 22 of the mat. The procedure determines the initial (static) friction of a material when beginning to slide over another material. A sled, which has the test specimen attached, is pulled over a platen (table)  
25 which has a representative surface material (the metal surface of the instrument) or a representative surface material attached. The test specimen and material on the platen are in surface-to-surface contact with each other. The COF is defined as the measure of the relative difficulty when the surface of one material starts to slide over an adjoining surface of either itself or of another material. The static COF represents the maximum  
30 COF values obtained during the first inch (2.54 cm) of specimen travel distance at a testing rate of 15.25 cm/min.

The following apparatus and material are required: Coefficient of Friction tester TMI Model 32-90 and Testing-Sled B with foam  $200 \pm 5.0$  grams both obtained from Testing  
35 Machines, Inc., Islanda, New York.

The test specimens are prepared as follows: Care must be taken in handling the specimens. The test surface must be kept free of all dust, lint, fingerprints, or any foreign matter that might change the surface characteristic of the specimen. Identify and mark the machine direction on the test side of the specimen. Cut the sled specimen from the

5 specimen  $120 \pm 1$  mm in the machine direction longitudinal direction and  $67 \pm 1$  mm in the lateral direction.

The specimens are tested as follows: Conduct the testing in an atmosphere of  $23^\circ \pm 2^\circ\text{C}$  and  $50 \pm 2\%$  relative humidity. Condition all specimens a minimum of 24 hours prior to

10 testing. Calibrate the COF tester according the manufacturer's directions. Set the travel distance to 15 cm and set the travel speed to 15.25 cm/min. Set the COF tester display to read grams and zero the display. The specimen with the outer surface 24 exposed is mounted to the test sled using clamps on the sled. The longer dimension is engaged in the clamps which are at either end of the sled. Ensure the surfaces of the test specimen and

15 test bed materials are not contaminated during mounting. The sled is positioned very lightly and gently on the surface of the platen to prevent any unnatural bond from developing between the specimen and the surface of the platen. Start the test by pressing the TEST key on the COF tester.

20 The results are calculated and displayed by the COF tester. The COF tester records the "STATIC" value for the highest instantaneous coefficient of friction value obtained to begin the movement between the surfaces within the first inch of pull. The COF tester also records the "KINETIC" value obtained from the average of the values obtained during the 60 seconds of the test (15 cm travel distance). The calculation for "STATIC" coefficient of

25 friction is obtained by the tester using the following equation:  $\mu_s = A_s / B$ , where  $\mu_s$  = the static coefficient of friction value,  $A_s$  = the maximum initial gram value obtained within the first inch of movement, and  $B$  = sled weight of about 200 grams. Three specimens of each sample should be tested and the results should be averaged.

### 30 **Absorbent Capacity**

As used herein, "absorbent capacity" is the grams of distilled water per unit area retained by the mat. Absorbent capacity is determined by conditioning the test samples in a standard laboratory atmosphere of  $23 \pm 1^\circ\text{C}$  and  $50 \pm 2\%$  RH for at least 24 hours prior to testing the sample. All testing is conducted under the standard laboratory conditions. Cut

35 a 10.1 cm by 10.1 cm sample from the specimen. Weigh the specimen to the nearest 0.01 gram and place in a bath of distilled water. Allow the specimen to soak for 3 minutes

(± 5 seconds) ensuring an excess amount of water is present in the bath to completely saturate the specimen. After 3 minutes, remove the specimen and hang it from a clamp (such as a office binder clip, a suitable example is a 1.9 cm wide by 0.95 cm capacity binder clip; part no. BTM00251 available from BT Office Products, Milwaukee WI) in a diamond shape so that one corner is lower than the rest of the specimen. Allow the specimen to drain for 3 minutes (±5 seconds). After 3 minutes, remove the specimen from the clamp and weigh to the nearest 0.01 gram. Calculate the absorbent capacity (grams per 10.1 cm by 10.1 cm sample) by subtracting the dry specimen weight from the saturated specimen weight. Three specimens of each sample should be tested, and the results should be averaged.

#### RESULTS:

Table 1: Absorbent Capacity and Coefficient of Friction

	Absorbent Capacity (g/cm <sup>2</sup> )	Static COF	Kinetic COF
Example 1	0.083	0.947	0.876

15

Having described the invention in rather full detail, it will be readily apparent that various changes and modifications can be made without departing from the spirit of the invention. All of such changes and modifications are contemplated as being within the scope of the invention as defined by the subjoined claims.

20

Claims

We claim:

- 5     1. A disposable mat defining a longitudinal direction, a lateral direction and at least one edge, said disposable mat comprising:
- A first face;
- A second face opposite said first face;
- At least one line of weakness, said at least one line of weakness being configured
- 10    to allow the separation of a removable portion from said disposable mat; and
- A holding mechanism configured to increase the resistance of said mat to movement when said first face of said mat is placed upon a planar surface.
- 15     2. The mat of claim 1 further comprising a pair of first reference marks located on said second face and wherein said pair of first reference marks is configured to indicate where the feet of the user should be placed when the user is toileting.
- 20     3. The mat of claim 2 wherein said pair of first reference marks is each located a first substantially equal distance from said at least one line of weakness.
- 25     4. The mat of claim 2 wherein each of said pair of first reference marks are provided by a set of first graphics and wherein said set of first graphics are substantially similar.
- 30     5. The mat of claim 2 further comprising at least one decorative graphic located on said second face, wherein said at least one decorative graphic has a decorative graphic theme and said pair of first reference marks are provided by a set of first graphics, and wherein said set of first graphics are related to said decorative graphic theme.
- 35     6. The mat of claim 5 wherein said decorative graphic theme is related to the theme of article graphics of a disposable absorbent article.
7. The mat of claim 2 further comprising
- a pair of second reference marks located on said second face;
- wherein said pair of first reference marks are configured to indicate where the feet
- of the user should be placed when the user is standing when toileting, and wherein said pair of second reference marks are configured to indicate where the feet of the user should be placed when the user is sitting when toileting.



8. The mat of claim 7 wherein said pair of first reference marks are provided by a set of first graphics and said pair of second reference marks are provided by a pair of second graphics that are different than said set of first graphics.
- 5
9. The mat of any one of claims 2 to 8 further comprising a potty location mark located on said second face wherein said pair of first reference marks is each located a first substantially equal distance from said potty location mark.
- 10
10. The mat as claimed in any one of the preceding claims wherein said holding mechanism is at least one weight attached to said mat.
11. The mat as claimed in any one of the preceding claims wherein said holding mechanism provides a static coefficient of friction of at least 0.5 as defined by the
- 15
- coefficient of friction test set forth herein.
12. The mat as claimed in any one of the preceding claims wherein said holding mechanism is provided by said first face.
- 20
13. The mat as claimed in any one of the preceding claims wherein said at least one line of weakness intersects with said at least one edge in at least two points.
14. The mat as claimed in any one of the preceding claims wherein said at least one line of weakness is shaped such that upon separating said removable portion, said mat
- 25
- includes a pair of laterally spaced extensions.
15. The mat as claimed in any one of the preceding claims further defining a mat perimeter, and wherein said at least one line of weakness is shaped such that upon separating said removable portion from said mat, said mat includes an opening within said
- 30
- mat perimeter.
16. The mat of claim 15 wherein at least a portion of said opening is at least 22 cm wide.
17. The mat as claimed in any one of the preceding claims wherein said second face is
- 35
- relatively more absorbent than said first face.

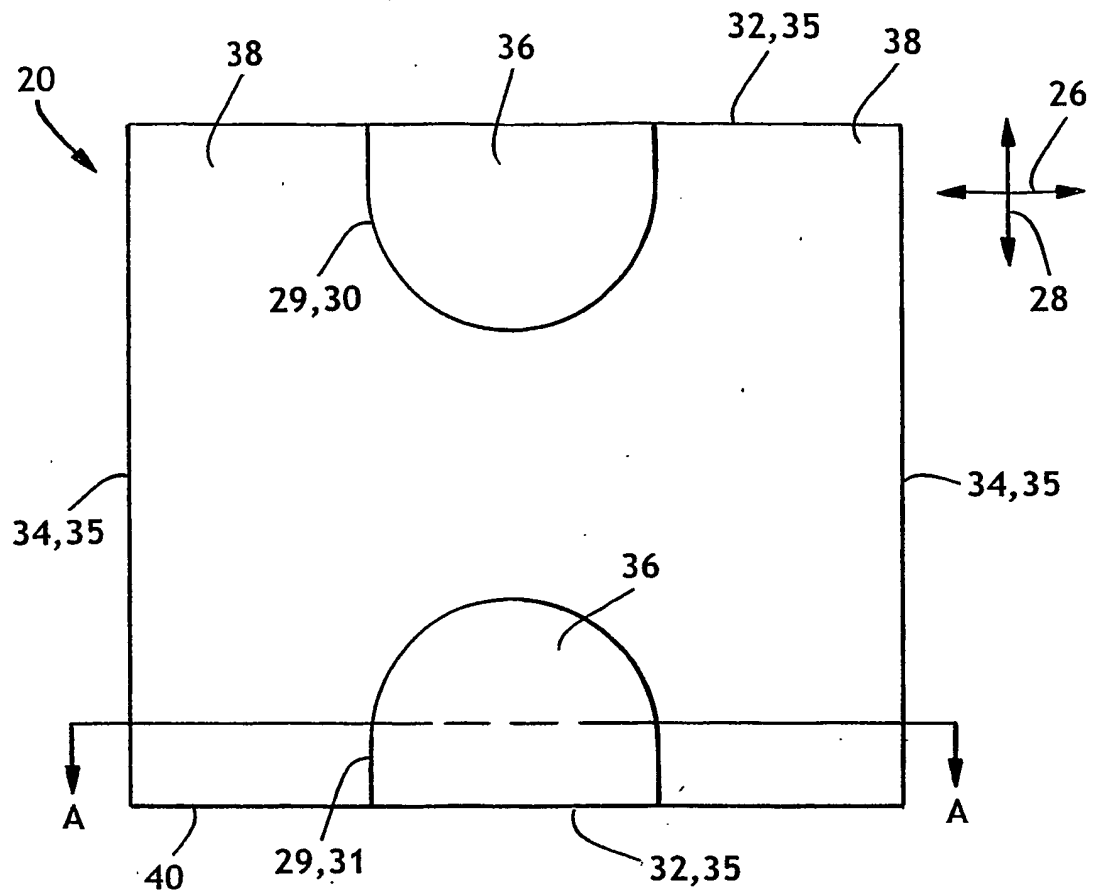


FIG. 1

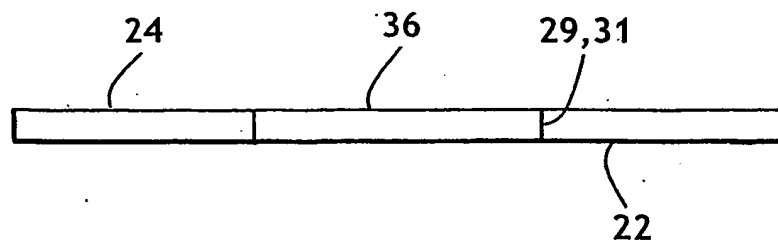
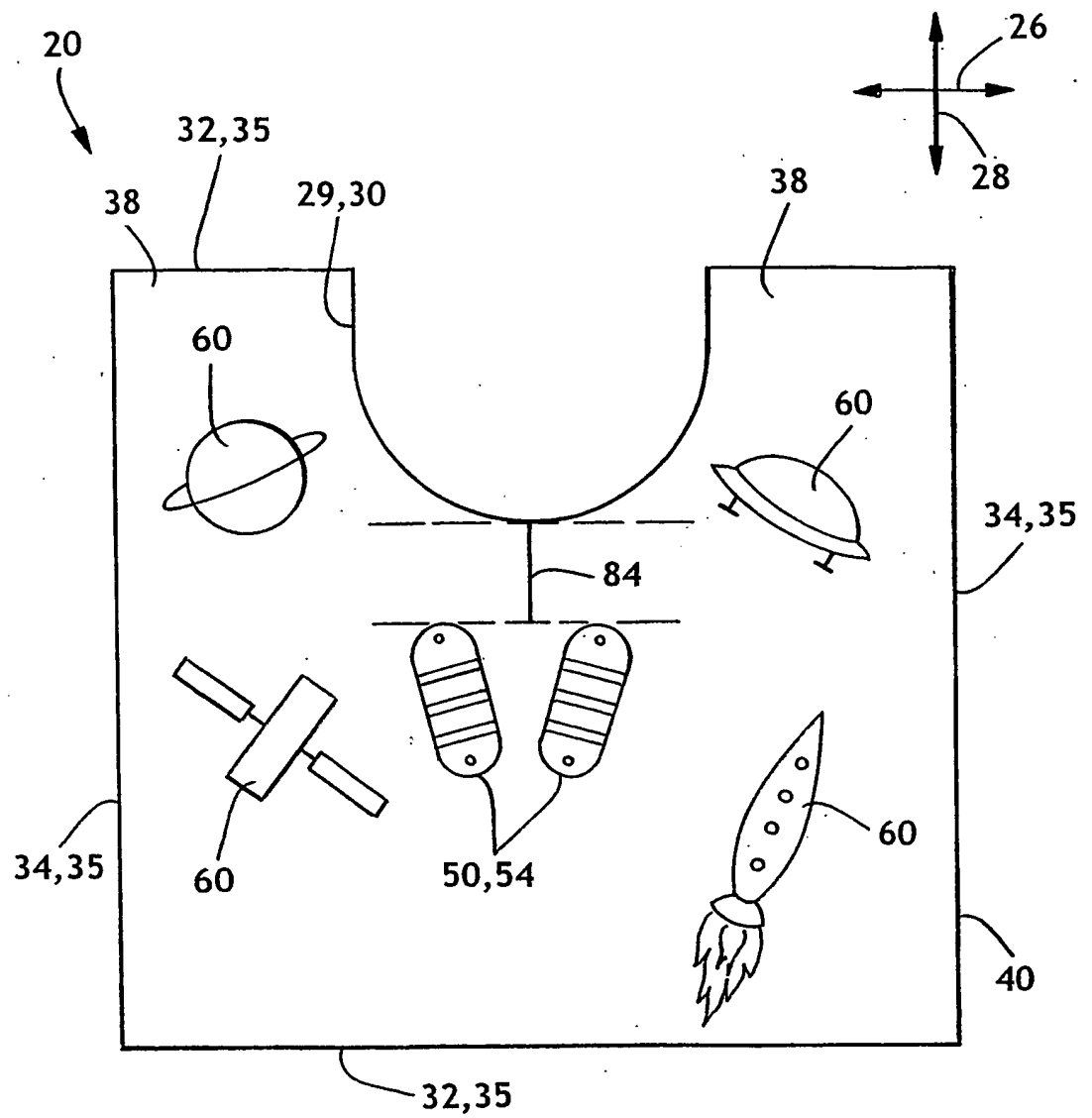


FIG. 2

**FIG. 3**

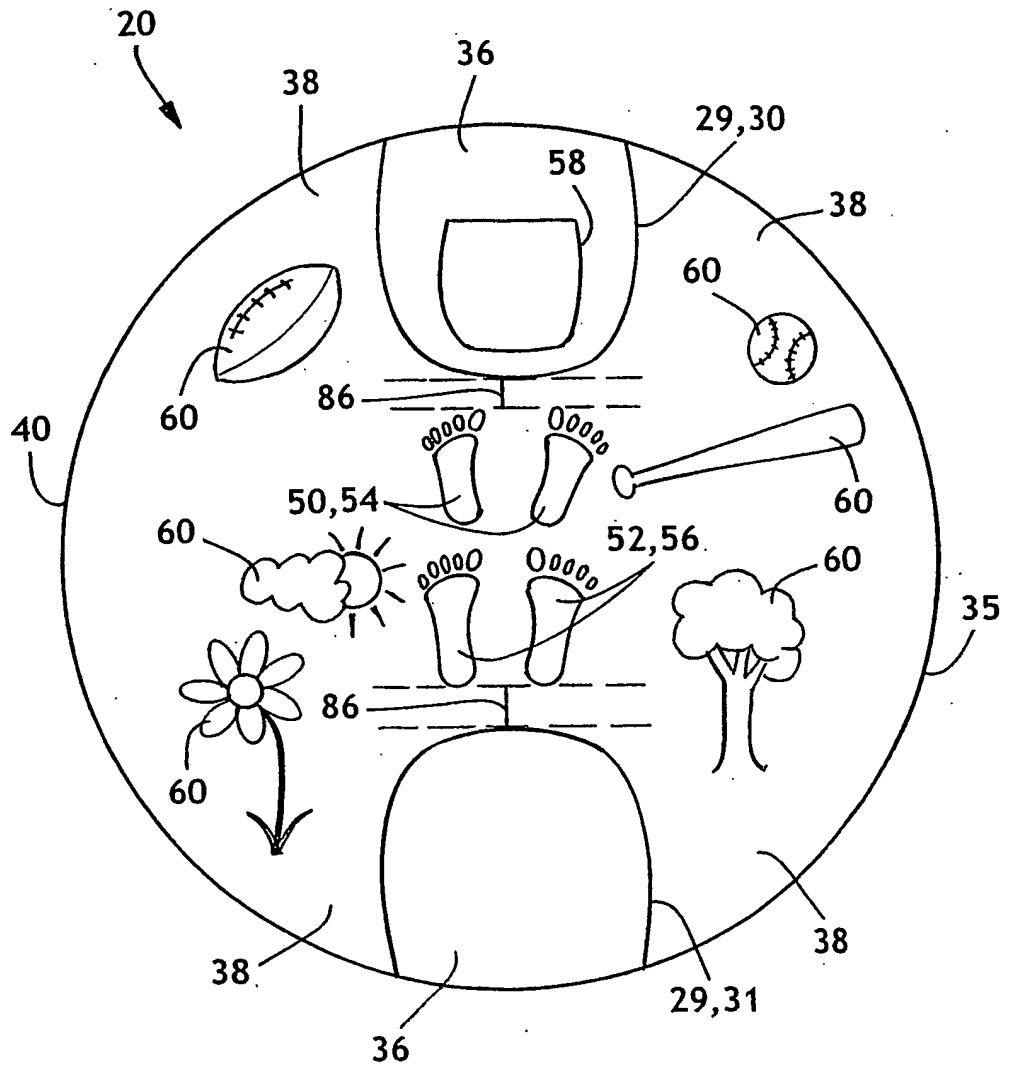


FIG. 4

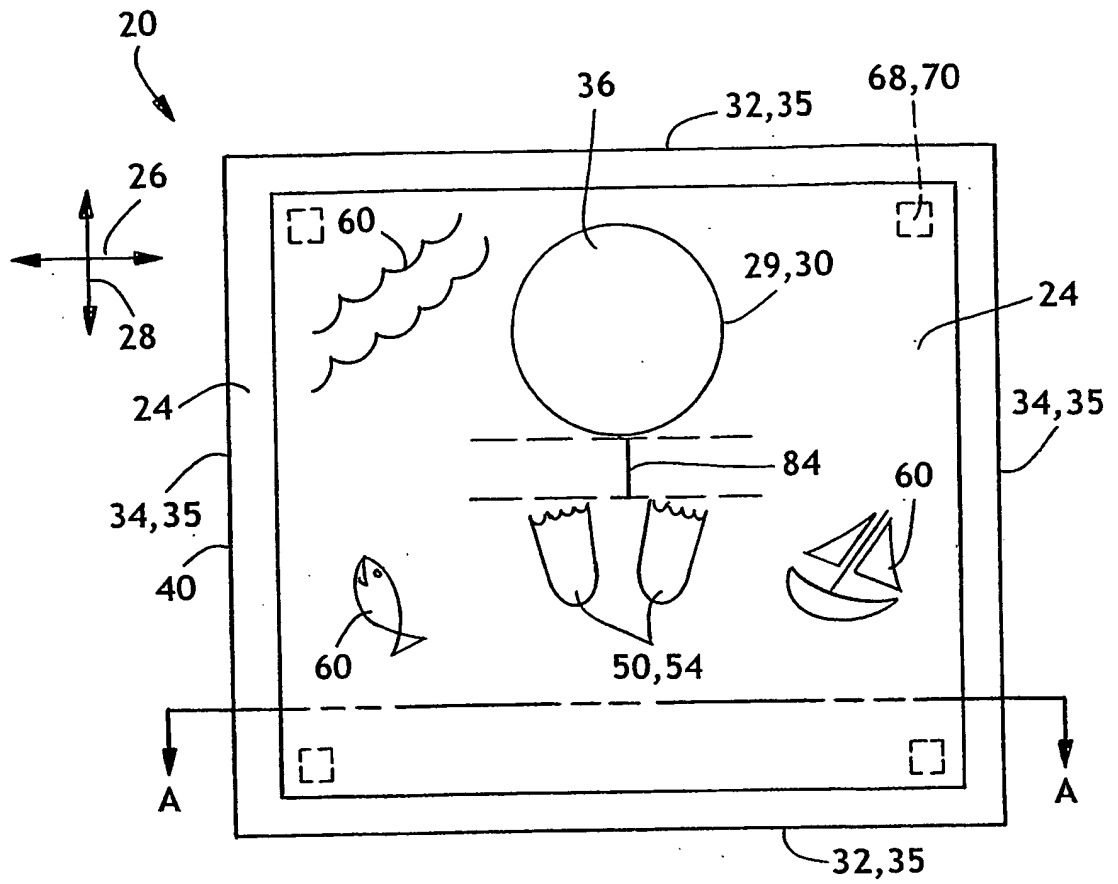


FIG. 5

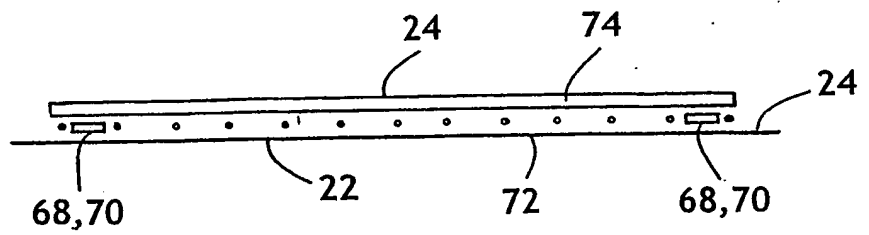


FIG. 6

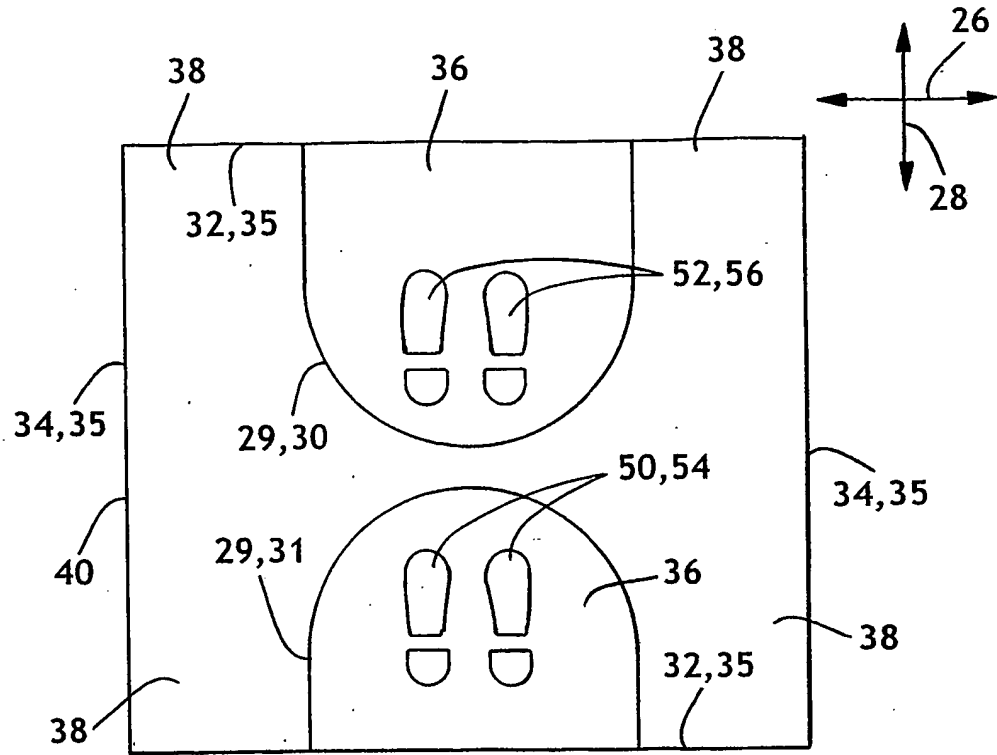


FIG. 7

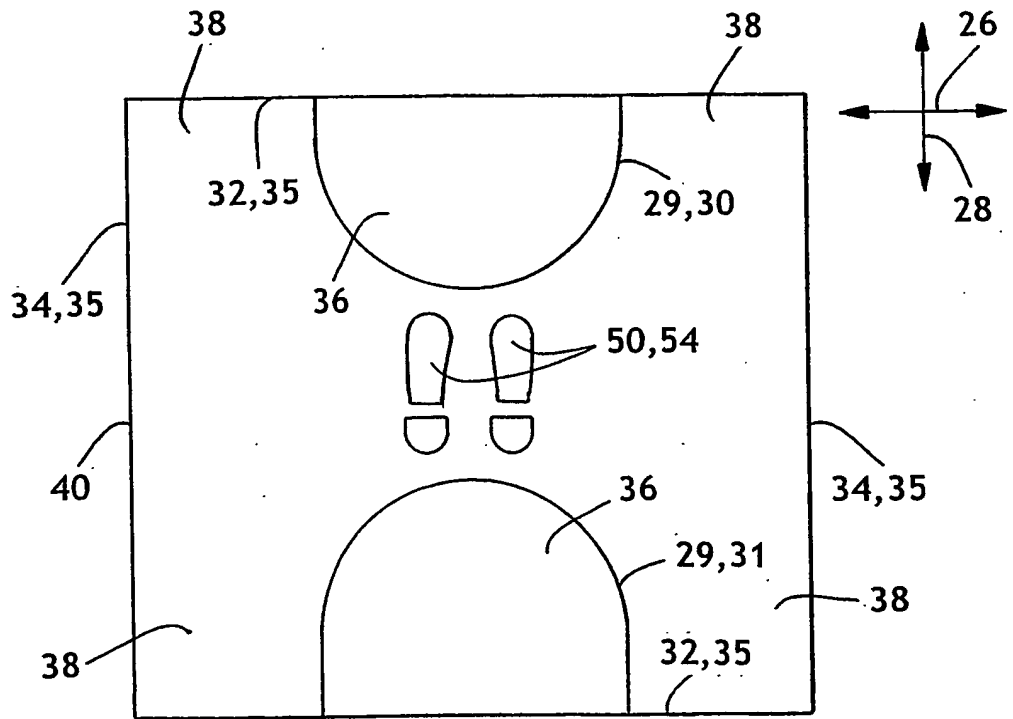
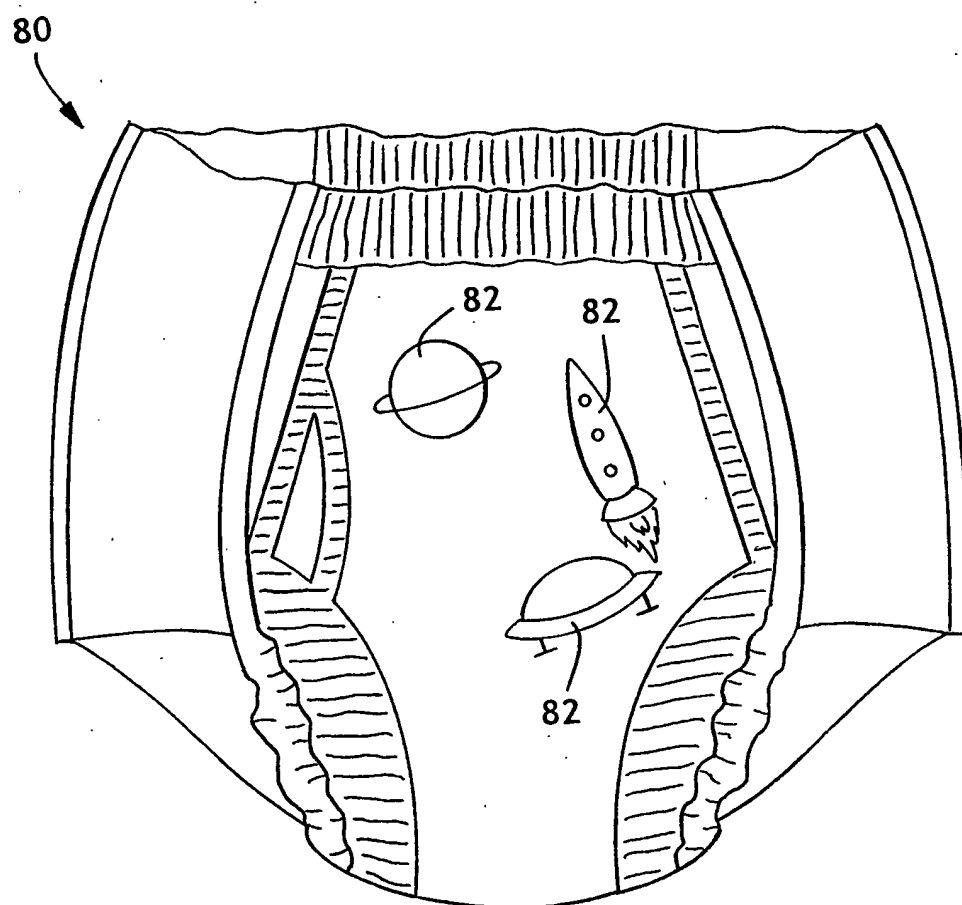


FIG. 8

**FIG. 9**

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/007672

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A47G27/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A47G A47K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 206 275 A (W. R. P. O. LIMITED) 5 January 1989 (1989-01-05) the whole document	1,10,11, 13-17
X	US 5 712 012 A (FORMAN ET AL) 27 January 1998 (1998-01-27) abstract; figures	1,11-16
X	FR 2 760 618 A (DELPHINNOVE) 18 September 1998 (1998-09-18) claims 1,5; figure	1,10,11, 13-16
A	US 4 125 656 A (CREAMER) 14 November 1978 (1978-11-14) abstract	1,11,12, 17

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

12 August 2004

Date of mailing of the international search report

20/08/2004

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Authorized officer

Beugeling, G.L.H.



# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2004/007672

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 2-9  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(v) PCT - Presentation of information
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/007672

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2206275	A	05-01-1989	NONE	
US 5712012	A	27-01-1998	NONE	
FR 2760618	A	18-09-1998	FR 2760618 A1	18-09-1998
US 4125656	A	14-11-1978	NONE	

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